



PRELIMINARY DETERMINATION  
ON PERMIT APPLICATION

Date of Mailing: May 2, 2011

Name of Applicant: Matriarch Construction, Inc.

Source: Portable Crushing and Screen Operation

Proposed Action: The Department of Environmental Quality (Department) proposes to issue a permit, with conditions, to the above-named applicant. The application was assigned Montana Air Quality Permit Application Number 4649-00.

Proposed Conditions: See attached.

Public Comment: Any member of the public desiring to comment must submit such comments in writing to the Air Resources Management Bureau (Bureau) of the Department at the above address. Comments may address the Department's analysis and determination, or the information submitted in the application. In order to be considered, comments on this Preliminary Determination are due by June 1, 2011. Copies of the application and the Department's analysis may be inspected at the Bureau's office in Helena. For more information, you may contact the Department.

Departmental Action: The Department intends to make a decision on the application after expiration of the Public Comment period described above. A copy of the decision may be obtained at the above address. The permit shall become final on the date stated in the Department's Decision on this permit, unless an appeal is filed with the Board of Environmental Review (Board).

Procedures for Appeal: Any person jointly or severally adversely affected by the final action may request a hearing before the Board. Any appeal must be filed by the date stated in the Department's Decision on this permit. The request for a hearing shall contain an affidavit setting forth the grounds for the request. Any hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing in triplicate to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, MT 59620.

For the Department,

Vickie Walsh  
Air Permitting Program Supervisor  
Air Resources Management Bureau  
(406) 444-3490

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VW:DCK  
Enclosures

## MONTANA AIR QUALITY PERMIT

Issued To: Matriarch Construction, Inc.  
P.O. Box 472  
Laurel, MT 59044

MAQP: #4649-00  
Application Complete: April 19, 2011  
Preliminary Determination Issued: May 2, 2011  
Department's Decision Issued:  
Permit Final:  
AFS #: 777-4649

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Matriarch Construction, Inc (Matriarch) pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

### SECTION I: Permitted Facilities

#### A. Permitted Equipment

Matriarch proposes to operate a portable crushing and screening operation. A complete list of permitted equipment is contained in Section I.A of the permit analysis.

#### B. Plant Location

Matriarch proposes to operate a portable nonmetallic mineral processing operation which will initially be located at Section 17, Township 2 South, Range 24 East within Yellowstone County, Montana. However, MAQP #4649-00 applies while operating at any location in Montana, except those areas having a Department of Environmental Quality (Department)-approved permitting program, areas considered tribal lands, or areas in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) nonattainment areas. *A Missoula County air quality permit will be required for locations within Missoula County, Montana.* An addendum will be required for locations in or within 10 km of certain PM<sub>10</sub> nonattainment areas.

### SECTION II: Conditions and Limitations

#### A. Emission Limitations

1. All visible emissions from any Standards of Performance for New Stationary Source (NSPS) – affected crusher shall not exhibit an opacity in excess of the following averaged over 6 consecutive minutes (ARM 17.8.340 and 40 CFR 60, Subpart OOO):
  - For crushers that commence construction, modification, or reconstruction on or after April 22, 2008: 12% opacity
  - For crushers that commence construction, modification, or reconstruction after August 31, 1983, but before April 22, 2008: 15% opacity
2. All visible emissions from any other NSPS-affected equipment (such as screens and conveyors) shall not exhibit an opacity in excess of the following averaged over 6 consecutive minutes (ARM 17.8.340 and 40 CFR 60, Subpart OOO):
  - For equipment that commence construction, modification, or reconstruction on or after April 22, 2008: 7% opacity

- For equipment that commence construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008: 10% opacity
- 3. All visible emissions from any non-NSPS affected equipment shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
- 4. Water and spray bars shall be available on-site at all times and operated as necessary to maintain compliance with the opacity limitations in Sections II.A.1, II.A.2, and II.A.3 (ARM 17.8.749 and ARM 17.8.752).
- 5. Matriarch shall not cause or authorize the use of any street, road or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
- 6. Matriarch shall treat all unpaved portions of the haul roads, access roads, parking lots, or the general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.5 (ARM 17.8.749).
- 7. Matriarch shall not operate more than one crusher at any given time and the total combined maximum rated design capacity of the crusher shall not exceed 275 tons per hour (TPH) (ARM 17.8.749).
- 8. Crushing production is limited to 2,409,000 tons during any rolling 12-month time period (ARM 17.8.749).
- 9. Matriarch shall not operate more than two screens at any given time and the total combined maximum rated design capacity of the screens shall not exceed 425 TPH (ARM 17.8.749).
- 10. Combined screening production is limited to 3,723,000 tons during any rolling 12-month time period (ARM 17.8.749).
- 11. Matriarch shall not operate or have on-site more than one diesel engine/generator. The maximum capacity of the engine that drives the generator shall not exceed 817 hp (ARM 17.8.749).
- 12. Operation of the diesel engine driving the generator shall not exceed 3,200 hours during any rolling 12-month time period (ARM 17.8.749 and ARM 17.8.1204).
- 13. If the permitted equipment is used in conjunction with any other equipment owned or operated by Matriarch, at the same site, production shall be limited to correspond with an emission level that does not exceed 250 tons during any rolling 12-month period. Any calculations used to establish production levels shall be approved by the Department (ARM 17.8.749).
- 14. Matriarch shall comply with all applicable standards and limitations, monitoring, reporting, recordkeeping, testing, and notification requirements contained in 40 CFR 60, Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants* (ARM 17.8.340 and 40 CFR 60, Subpart OOO).

15. Matriarch shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart III, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* and 40 CFR 63, Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, for any applicable diesel engine (ARM 17.8.340; 40 CFR 60, Subpart III; ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

B. Testing Requirements

1. Within 60 days after achieving maximum production, but no later than 180 days after initial start-up, an Environmental Protection Agency (EPA) Method 9 opacity test and/or other methods and procedures as specified in 40 CFR 60.675 must be performed on all NSPS-affected equipment to demonstrate compliance with the emission limitations contained in Section II.A.1 and II.A.2 (ARM 17.8.340 and 40 CFR 60, Subpart A and Subpart OOO). Additional testing may be required by 40 CFR 60, Subpart OOO (ARM 17.8.340 and 40 CFR 60, Subpart OOO).
2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
3. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. If this crushing/screening plant is moved to another location, an Intent to Transfer form must be sent to the Department and a Public Notice Form for Change of Location must be published in a newspaper of general circulation in the area to which the transfer is to be made, at least 15 days prior to the move. The proof of publication (affidavit) of the Public Notice Form for Change of Location must be submitted to the Department prior to the move. These forms are available from the Department (ARM 17.8.749 and ARM 17.8.765).
2. Matriarch shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but not be limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used for calculating operating fees, and/or to verify compliance with permit limitations (ARM 17.8.505).

3. Matriarch shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit***, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

4. Matriarch shall maintain on-site records showing daily hours of operation and daily production rates for the last 12 months. The records compiled in accordance with this permit shall be maintained by Matriarch as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).
5. Matriarch shall document, by month, the crushing production from the facility. By the 25<sup>th</sup> day of each month, Matriarch shall calculate the crushing production from the facility for the previous month. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section II.A.8. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
6. Matriarch shall document, by month, the screening production from the facility. By the 25<sup>th</sup> day of each month, Matriarch shall calculate the screening production from the facility for the previous month. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section II.A.10. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
7. Matriarch shall document, by month, the hours of operation of the diesel engine/generator. By the 25<sup>th</sup> day of each month, Matriarch shall calculate the hours of operation for the diesel engine/generator for the previous month. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section II.A.12. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
8. Matriarch shall annually certify that its emissions are less than those that would require the facility to obtain an air quality operating permit as required by ARM 17.8.1204(3)(b). The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emissions inventory information (ARM 17.8.749 and ARM 17.8.1204).

D. Notification

Matriarch shall provide the Department with written notification of the actual start-up date postmarked within 15 days after the actual start-up date (ARM 17.8.749)

SECTION III: General Conditions

- A. Inspection – Matriarch shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (Continuous Emissions Monitoring System (CEMS), Continuous Emissions Rate Monitoring System (CERMS)) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if Matriarch fails to appeal as indicated below.

- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Matriarch of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided for in ARM 17.8.740, *et seq.* (ARM 17.8.756)
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Air Quality Operation Fees – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Matriarch may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).
- I. The Department may modify the conditions of this permit based on local conditions of any future site. These factors may include, but are not limited to, local terrain, meteorological conditions, proximity to residences, etc.
- J. Matriarch shall comply with the conditions contained in this permit while operating in any location in Montana, except within those areas that have a Department-approved permitting program or areas considered tribal lands.

Montana Air Quality Permit (MAQP) Analysis  
Matriarch Construction, Inc.  
MAQP #4649-00

I. Introduction/Process Description

Matriarch Construction, Inc. (Matriarch) owns and operates a portable crushing and screening plant.

A. Permitted Equipment

The facility is permitted to operate one cone crusher with a maximum material throughput capacity not to exceed 275 tons per hour (TPH), one screen with a maximum material throughput capacity not to exceed 275 TPH, one screen with a maximum material throughput capacity not to exceed 150 TPH, one diesel engine/generator with a maximum rated capacity not to exceed 817 horsepower (hp), miscellaneous conveyors, and associated equipment.

B. Source Description

Matriarch will utilize this crushing/screening operation to crush and sort sand and gravel material for use in various construction projects. For a typical operational setup, unprocessed materials are loaded into one of the feeders, transferred via conveyor to be screened and either conveyed to the Metso cone crusher or separated and stockpiled. The cone crusher and JCI screen deck will be configured as a closed circuit conveyor operation, whereby materials are continuously circulated through process until the desired product diameter is met. Material exiting the circuit are separated and stockpiled.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department of Environmental Quality (Department). Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

Matriarch shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM<sub>10</sub>
11. ARM 17.8.230 Fluoride in Forage

Matriarch must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Matriarch shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.



4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.
6. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 Code of Federal Regulations (CFR) Part 60, Standards of Performance for New Stationary Sources (NSPS). Matriarch is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.
  - a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
  - b. 40 CFR 60, Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants. In order for a crushing plant to be subject to this subpart, the facility must meet the definition of an affected facility and, the affected equipment must have been constructed, reconstructed, or modified after August 31, 1983. Based on the information submitted by Matriarch, the portable crushing equipment to be used under MAQP #4649-00 is subject to this subpart as it meets the definition of an affected facility and has been constructed or modified after the applicability date.
  - c. 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE). Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines, and owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005, are subject to this subpart.

Based on the information submitted by Matriarch, the CI ICE equipment permitted under MAQP #4649-00 is subject to this subpart as the diesel engine/generator was manufactured on April 24, 2006. This permit is written in a de minimis friendly manner which allows substitution of the diesel engine/generator as long as the maximum rated capacity does not exceed 817 hp. Matriarch should determine the actual date of construction for any CI ICE utilized in association with MAQP #4649 to ensure compliance to this subpart.
7. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This rule incorporates, by reference, 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Categories. Matriarch is considered an NESHAP-affected facility under 40 CFR Part 63 and is subject to the requirements of the following subparts.
  - a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAPs Subpart as listed below.

- b. 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants (HAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary RICE at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. An area source of Hazardous Air Pollutant (HAP) emissions is a source that is not a major source. Any diesel RICE engine operated by Matriarch will be subject to this Maximum Available Control Technology (MACT) standard if the engine remains or will remain at the permitted location for more than 12 months, or a shorter period of time for an engine located at a seasonal source. A seasonal source remains at a single location on a permanent basis (at least 2 years) and operates 3 months or more each year. Since the permit is written in a de minimis friendly manner, area source provisions of the MACT requirements may apply to the facility engine.

D. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Matriarch submitted the appropriate permit application fee for the current permit action.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any asphalt plant, crusher or screen that has the potential to emit (PTE) greater than 15 tons per year of any pollutant. Matriarch has a PTE greater than 15 tons per year of particulate matter (PM), PM with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>), oxides of nitrogen (NO<sub>x</sub>), and carbon monoxide (CO); therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. Matriarch submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Matriarch submitted an affidavit of publication of public notice for the April 11, 2011, issue of the Billings Gazette, a newspaper of general circulation in the City of Billings in Yellowstone County, as proof of compliance with the public notice requirements.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Matriarch of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions.

The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. (1) This rule states that an MAQP may be transferred from one location to another if the Department receives a complete notice of intent to transfer location, the facility will operate in the new location for less than 1 year, the facility will comply with the FCAA and the Clean Air Act of Montana, and the facility complies with other applicable rules. (2) This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modification--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because it is not a listed source and the facility's PTE is less than 250 tons per year of any pollutant (excluding fugitive emissions).

G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
  - a. PTE > 100 tons/year of any pollutant;
  - b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
  - c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) in a serious PM<sub>10</sub> nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #4649-00 for Matriarch, the following conclusions were made:
  - a. The facility's PTE is not less than 100 tons/year for NOx.

- b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year of all HAPs.
- c. This source is not located in a serious PM<sub>10</sub> nonattainment area.
- d. This facility is subject to a current NSPS (40 CFR 60, Subparts OOO and Subparts IIII).
- e. This facility is potentially subject to a current NESHAP standard (40 CFR 63, Subpart ZZZZ).
- f. This source is not a Title IV affected source
- g. This source is not a solid waste combustion unit.
- h. This source is not an EPA designated Title V source.

Matriarch requested federally-enforceable permit limitations to remain a minor source of emissions with respect to Title V. Based on these limitations, the Department determined that this facility is not subject to the Title V Operating Permit Program. However, in the event that the EPA makes minor sources that are subject to NSPS obtain a Title V Operating Permit, this source will be subject to the Title V Operating Permit Program.

- i. ARM 17.8.1204(3). The Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's PTE.
  - i. In applying for an exemption under this section the owner or operator of the facility shall certify to the Department that the source's PTE does not require the source to obtain an air quality operating permit.
  - ii. Any source that obtains a federally enforceable limit on PTE shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.
- 3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. The compliance certification submittal by ARM 17.8.1204(3) shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this subchapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

### III. BACT Determination

A BACT determination is required for each new or modified source. Matriarch shall install on the new or modified source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized.

#### Crushing/Screening Particulate Emissions

Two types of emission controls are readily available and used for dust suppression of fugitive emissions that result from the operation of crushing/screening equipment and associated activities. These two control methods are water and chemical dust suppressant. Chemical dust

suppressant could be used on the area surrounding the crushing/screening operation, and for emissions from the crushing/screening operation itself. However, in view of the fact that water is more readily available, more cost effective, is equally effective as chemical dust suppressant, while presenting less potential environmental quality degradation, water has been identified as the most appropriate method of pollution control of particulate emissions for the general plant area. In addition, water suppression has been required of recently permitted similar sources. However, Matriarch may use chemical dust suppressant to assist in controlling particulate emissions.

Matriarch shall not cause or authorize to be discharged into the atmosphere from any NSPS-affected crusher any visible emissions that exhibit an opacity of 12% or greater averaged over 6 consecutive minutes for crushers that commenced construction, modification, or reconstruction on or after April 22, 2008. Additionally, Matriarch shall not cause or authorize to be discharged into the atmosphere from any other associated NSPS-affected equipment, such as screens and material conveyors, any visible emissions that exhibit an opacity of 7% or greater averaged over 6 consecutive minutes for equipment that commences construction, modification, or reconstruction after April 22, 2008, and 10% for equipment that commences construction, modification, or reconstruction after August 31, 1983, but before April 22, 2008. Finally, Matriarch shall not cause or authorize to be discharged into the atmosphere from any crusher, screen, or associated equipment, not subject to NSPS, any visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes

Matriarch is required to have water spray bars and water available on site (at all times) and to apply the water, as necessary, to maintain compliance with the opacity restrictions and reasonable precautions limitations. Matriarch may also use chemical dust suppressant to maintain compliance with emissions limitations in Section II.A. of MAQP #4649-00. The Department determined that using water spray bars, water, and/or chemical dust suppressant to maintain compliance with the opacity requirements and reasonable precaution limitations constitutes BACT for the operation for the additional equipment.

The control options selected contain control equipment and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

#### Diesel Engines

Due to the limited amount of emissions produced by the diesel engine and the lack of cost effective add-on controls, this control approach would be cost prohibitive. Therefore, the Department determined that proper operation and maintenance with no add-on controls would constitute BACT for the diesel engine.

In addition, any new diesel engine would likely be required to comply with the federal engine emission limitations including, for example, EPA Tier emission standards for non-road engines (40 CFR Part 1039), New Source Performance Standard emission limitations for stationary compression ignition engines (40 CFR 60, Subpart IIII), or National Emissions Standards for Hazardous Air Pollutant Sources for Reciprocating Internal Combustion Engines (40 CFR 63, Subpart ZZZZ). Therefore, the Department has determined that compliance with applicable federal standards and proper operation and maintenance of the engines constitutes BACT for these engines.

#### IV. Emission Inventory

Emission Source	Emissions Tons/Year [PTE]						
	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOC
2011 Metso HP 200 Cone Crusher	1.45	0.65	0.12				
2011 Telesmith/JCI 6'x20' 3-Deck Screen	2.65	0.89	0.06				
Nordberg SW 348 Screen	1.45	0.49	0.03				
Material Handling- Metso Crusher & JCI Screen	23.71	11.19	1.89				
Material Handling - Nordberg SW 348 Screen	19.02	9.00	1.47				
Diesel Engine (817 hp maximum) <sup>(a)</sup>	2.88	2.88	0.44	8.73	40.52	2.68	3.28
Unpaved Roadways (Haul Roads)	10.98	3.03	0.30				
<b>TOTAL EMISSIONS [TPH] ►</b>	<b>62.13</b>	<b>28.12</b>	<b>4.32</b>	<b>8.73</b>	<b>40.52</b>	<b>2.68</b>	<b>3.28</b>

a. Emission Inventory reflects enforceable limits on hours of operation and production output to keep allowable emissions below the Title V threshold AND 80 tpy AND to avoid dispersion modeling.

CO, carbon monoxide

NO<sub>x</sub>, oxides of nitrogen

PM, particulate matter

PM<sub>10</sub>, particulate matter with an aerodynamic diameter of 10 microns or less

PM<sub>2.5</sub>, particulate matter with an aerodynamic diameter of 2.5 microns or less

SO<sub>2</sub>, oxides of sulfur

TPY, tons per year

VOC, volatile organic compounds

#### Portable Crushing & Screening Plant

Production Rate:

Metso & JCI Deck Screen: 275 tons/hour (Maximum) 2409000 tons/year (Maximum)

Nordberg Screen: 150 tons/hour (Maximum) 1314000 tons/year (Maximum)

Power Plant: 817 hp - 2006 Caterpillar Diesel Engine Generator  
[Model 3412CDITA / Serial No.: 9EP03978 / Manufacture Date: 4/24/2006]

#### Material Processing:

##### Metso HP 200 Cone Crusher [SCC 3-05-030-03]

Process Rate: 275 tons/hour

Operating Hours: 8760 hours/year

#### Particulate Emissions:

PM Emissions (controlled):

Emission Factor 0.0012 lbs/ton processed [AP-42 Table 11.19.2-2, 8/04]

Calculations (0.0012 lbs/ton) \* (275 tons/hr) = 0.33 lbs/hr

(0.33 lbs/hr) \* (8760 hrs/yr) \* (0.0005 tons/lb) = 1.45 TPY

PM<sub>10</sub> Emissions (controlled):

Emission Factor 0.00054 lbs/ton processed [AP-42 Table 11.19.2-2, 8/04]

Calculations (0.00054 lbs/ton) \* (275 tons/hr) = 0.15 lbs/hr

(0.1485 lbs/hr) \* (8760 hrs/yr) \* (0.0005 tons/lb) = 0.65 TPY

PM<sub>2.5</sub> Emissions (controlled):

Emission Factor	0.0001 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.0001 lbs/ton) * (275 tons/hr) =		0.03 lbs/hr	
	(0.0275 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.12 TPY	

**Telesmith/JCI 6'x20' Deck Screen [SCC 3-05-020-02,03]**

Process Rate:	275 tons/hour
Operating Hours:	8760 hours/year

**Particulate Emissions:**

PM Emissions (controlled):

Emission Factor	0.0022 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.0022 lbs/ton) * (275 tons/hr) =		0.61 lbs/hr	
	(0.605 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		2.65 TPY	

PM<sub>10</sub> Emissions (controlled):

Emission Factor	0.00074 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.00074 lbs/ton) * (275 tons/hr) =		0.20 lbs/hr	
	(0.2035 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.89 TPY	

PM<sub>2.5</sub> Emissions (controlled):

Emission Factor	0.00005 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.00005 lbs/ton) * (275 tons/hr) =		0.01 lbs/hr	
	(0.01375 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.06 TPY	

**Nordberg SW 348 Screen Plant [SCC 3-05-020-02,03]**

Process Rate:	150 tons/hour
Operating Hours:	8760 hours/year

**Particulate Emissions:**

PM Emissions (controlled):

Emission Factor	0.0022 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.0022 lbs/ton) * (150 tons/hr) =		0.33 lbs/hr	
	(0.33 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		1.45 TPY	

PM<sub>10</sub> Emissions (controlled):

Emission Factor	0.00074 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.00074 lbs/ton) * (150 tons/hr) =		0.11 lbs/hr	
	(0.111 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.49 TPY	



PM<sub>2.5</sub> Emissions (controlled):

Emission Factor	0.00005 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.00005 lbs/ton) * (150 tons/hr) =		0.01	lbs/hr
	(0.0075 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.03	TPY

**Material Handling: Metso Cone Crusher & Telesmith/JCI Screen**

**Gravel Load-In > Grizzly Feeder [SCC 3-05-020-31]**

Process Rate:	275 tons/hour
Operating Hours:	8760 hours/year

**Particulate Emissions:**

PM Emissions:

Emission Factor	0.00016 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.00016 lbs/ton) * (275 tons/hr) =		0.04	lbs/hr
	(0.044 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.19	TPY

PM<sub>10</sub> Emissions:

Emission Factor	0.00016 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.00016 lbs/ton) * (275 tons/hr) =		0.04	lbs/hr
	(0.044 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.19	TPY

PM<sub>2.5</sub> Emissions:

Emission Factor	0.00016 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.00016 lbs/ton) * (275 tons/hr) =		0.04	lbs/hr
	(0.044 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.19	TPY

**Conveyor Transfer Points [SCC 3-05-020-06]**

Process Rate:	275 tons/hour
Operating Hours:	8760 hours/year
Total Transfers:	5 Transfers [Based on Process Flow Diagram]

**Particulate Emissions:**

PM Emissions(controlled):

Emission Factor	0.00014 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.00014 lbs/ton) * (275 tons/hr) * (5 Transfers) =		0.19	lbs/hr
	(0.1925 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.84	TPY

PM<sub>10</sub> Emissions (controlled):

Emission Factor	0.000046 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.000046 lbs/ton) * (275 tons/hr) * (5 Transfers) =		0.06	lbs/hr
	(0.06325 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.28	TPY

PM<sub>2.5</sub> Emissions(controlled):

Emission Factor	0.000013 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]		
Calculations	(0.000013 lbs/ton) * (275 tons/hr) * (5 Transfers) =		0.02	lbs/hr
	(0.017875 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.08	TPY

### Storage Pile Load-In & Load-Out

Process Rate: 275 tons/hour [Total For Four Crushers]  
Operating Hours: 8760 hours/year  
Pile Transfers: 4 [2-Initial Pile Formation; 2 Pile Load-Out to Trucks]

#### Particulate Emissions:

Emission Factor  $EF = k (0.0032) * [(U/5)^{1.3} / (M / 2)^{1.4}]$  [AP-42 13.2.4, 11/06]

where: EF, Emission Factor = lbs Emitted / ton Processed

k, Dimensionless Particle Size Multiplier PM = 0.74 [AP-42 13.2.4, 11/06]

k, Dimensionless Particle Size Multiplier PM<sub>10</sub> = 0.35 [AP-42 13.2.4, 11/06]

k, Dimensionless Particle Size Multiplier PM<sub>2.5</sub> = 0.053 [AP-42 13.2.4, 11/06]

U, Mean Wind Speed (mph) = 10.9 [ASOS/AWOS AVE-Billings, MT]

M, Material Moisture Content (%) = 2.53 [AP-42 13.2.4.3, 11/06]

#### PM Emissions:

Emission Factor  $EF = 0.74 * (0.0032) * [(10.9/5)^{1.3} / (2.525/2)^{1.4}] = 0.0047$  lbs/ton  
Calculations  $(0.0047 \text{ lbs/ton}) * (275 \text{ tons/hr}) * (4 \text{ pile transfers}) = 5.18$  lbs/hr  
 $(5.18 \text{ lbs/ton}) * (8760 \text{ hours/yr}) * (0.0005 \text{ tons/lb}) = 22.67$  TPY

#### PM<sub>10</sub> Emissions:

Emission Factor  $EF = 0.35 * (0.0032) * [(10.9/5)^{1.3} / (2.525/2)^{1.4}] = 0.0022$  lbs/ton  
Calculations  $(0.0022 \text{ lbs/ton}) * (275 \text{ tons/hr}) * (4 \text{ piles}) = 2.45$  lbs/hr  
 $(2.45 \text{ lbs/ton}) * (8760 \text{ hours/yr}) * (0.0005 \text{ tons/lb}) = 10.72$  TPY

#### PM<sub>2.5</sub> Emissions:

Emission Factor  $EF = 0.053 * (0.0032) * [(10.9/5)^{1.3} / (2.525/2)^{1.4}] = 0.0003$  lbs/ton  
Calculations  $(0.0003 \text{ lbs/ton}) * (275 \text{ tons/hr}) * (4 \text{ piles}) = 0.37$  lbs/hr  
 $(0.37 \text{ lbs/ton}) * (8760 \text{ hours/yr}) * (0.0005 \text{ tons/lb}) = 1.62$  TPY

### Material Handling: Nordberg SW 348 Screen Plant

#### Gravel Load-In > Feeder Load-In [SCC 3-05-020-31]

Process Rate: 150 tons/hour  
Operating Hours: 8760 hours/year

#### Particulate Emissions:

##### PM Emissions:

Emission Factor 0.00016 lbs/ton processed [AP-42 Table 11.19.2-2, 8/04]  
Calculations  $(0.00016 \text{ lbs/ton}) * (150 \text{ tons/hr}) = 0.02$  lbs/hr  
 $(0.024 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) = 0.11$  TPY

##### PM<sub>10</sub> Emissions:

Emission Factor 0.00016 lbs/ton processed [AP-42 Table 11.19.2-2, 8/04]  
Calculations  $(0.00016 \text{ lbs/ton}) * (150 \text{ tons/hr}) = 0.02$  lbs/hr  
 $(0.024 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) = 0.11$  TPY

PM<sub>2.5</sub> Emissions:

Emission Factor	0.00016 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	(0.00016 lbs/ton) * (150 tons/hr) =		0.02 lbs/hr
	(0.024 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.11 TPY

**Conveyor Transfer Points [SCC 3-05-020-06]**

Process Rate:	150 tons/hour
Operating Hours:	8760 hours/year
Total Transfers:	4 Transfers [Based on Process Flow Diagram]

**Particulate Emissions:**

PM Emissions(controlled):

Emission Factor	0.00014 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	(0.00014 lbs/ton) * (150 tons/hr) * (4 Transfers) =		0.08 lbs/hr
	(0.084 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.37 TPY

PM<sub>10</sub> Emissions (controlled):

Emission Factor	0.000046 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	(0.000046 lbs/ton) * (150 tons/hr) * (4 Transfers) =		0.03 lbs/hr
	(0.0276 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.12 TPY

PM<sub>2.5</sub> Emissions(controlled):

Emission Factor	0.000013 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	(0.000013 lbs/ton) * (150 tons/hr) * (4 Transfers) =		0.01 lbs/hr
	(0.0078 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.03 TPY

**Storage Pile Load-In & Load-Out**

Process Rate:	150 tons/hour [Total For Four Crushers]
Operating Hours:	8760 hours/year
Pile Transfers:	6 [3-Initial Pile Formation; 3 Pile Load-Out to Trucks]

**Particulate Emissions:**

Emission Factor	EF = $k (0.0032) * [(U/5)^{1.3} / (M / 2)^{1.4}]$	[AP-42 13.2.4, 11/06]	
where:	EF, Emission Factor = lbs Emitted / ton Processed		
	k, Dimensionless Particle Size Multiplier PM =	0.74	[AP-42 13.2.4, 11/06]
	k, Dimensionless Particle Size Multiplier PM <sub>10</sub> =	0.35	[AP-42 13.2.4, 11/06]
	k, Dimensionless Particle Size Multiplier PM <sub>2.5</sub> =	0.053	[AP-42 13.2.4, 11/06]
	U, Mean Wind Speed (mph) =	10.9	[ASOS/AWOS AVE-Billings, MT]
	M, Material Moisture Content (%) =	2.53	[AP-42 13.2.4-1, 11/06]

PM Emissions:

Emission Factor	EF = $0.74 * (0.0032) * [(10.9/5)^{1.3} / (2.525/ 2)^{1.4}] =$	0.0047 lbs/ton	
Calculations	(0.0047 lbs/ton) * (150 tons/hr) * (6 piles) =		4.24 lbs/hr
	(4.24 lbs/ton) * (8760 hours/yr) * (0.0005 tons/lb) =		18.55 TPY

**PM<sub>10</sub> Emissions:**

Emission Factor	$EF = 0.35 * (0.0032) * [ (10.9/5)^{1.3} / (2.525/2)^{1.4} ] =$	0.0022	lbs/ton
Calculations	$(0.0022 \text{ lbs/ton}) * (150 \text{ tons/hr}) * (6 \text{ piles}) =$	2.00	lbs/hr
	$(2.00 \text{ lbs/ton}) * (8760 \text{ hours/yr}) * (0.0005 \text{ tons/lb}) =$	8.77	TPY

**PM<sub>2.5</sub> Emissions:**

Emission Factor	$EF = 0.053 * (0.0032) * [ (10.9/5)^{1.3} / (2.525/2)^{1.4} ] =$	0.0003	lbs/ton
Calculations	$(0.0003 \text{ lbs/ton}) * (150 \text{ tons/hr}) * (6 \text{ piles}) =$	0.30	lbs/hr
	$(0.30 \text{ lbs/ton}) * (8760 \text{ hours/yr}) * (0.0005 \text{ tons/lb}) =$	1.33	TPY

**Diesel Engine:**

Engine Rating:	817	hp
Fuel Input:	5.72	MMBtu/hr
Fuel Consumption:	41.7	gallons/hour [Estimated]
Hours of Operation:	3200	hours/year

**Particulate Emissions:****PM Emissions:**

Emission Factor	0.0022	lb/hp-hr	[AP-42 3.3-1, 10/96 ]	1.80	lbs/hr
Calculations	$(0.0022 \text{ lb/hp-hr}) * (817 \text{ hp}) =$	2.88	TPY		
	$(1.80 \text{ lbs/hr}) * (3200 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$				

**PM<sub>10</sub> Emissions:**

Emission Factor	0.0022	lb/hp-hr	[AP-42 3.3-1, 10/96 ]	1.80	lbs/hr
Calculations	$(0.0022 \text{ lb/hp-hr}) * (817 \text{ hp}) =$	2.88	TPY		
	$(1.80 \text{ lbs/hr}) * (3200 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$				

**PM<sub>2.5</sub> Emissions:**

Emission Factor	0.0479	lb/MMBtu	[AP-42 3.4-2, 10/96 ]	0.27	lbs/hr
Calculations	$(0.0479 \text{ lb/MMBtu}) * (5.719 \text{ MMBtu/hr}) =$	0.44	TPY		
	$(0.27 \text{ lbs/hr}) * (3200 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$				

**PM<sub>CONDENSABLE</sub> Emissions:**

Emission Factor	0.0077	lb/MMBtu	[AP-42 3.4-2, 10/96 ]	0.04	lbs/hr
Calculations	$(0.0077 \text{ lb/MMBtu}) * (5.719 \text{ MMBtu/hr}) =$	0.07	TPY		
	$(0.04 \text{ lbs/hr}) * (3200 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$				

**CO Emissions:**

Emission Factor	0.00668	lb/hp-hr	[AP-42 3.3-1, 10/96 ]	5.46	lbs/hr
Calculations	$(0.00668 \text{ lb/hp-hr}) * (817 \text{ hp}) =$	8.73	TPY		
	$(5.46 \text{ lbs/hr}) * (3200 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$				

**NO<sub>x</sub> Emissions:**

Emission Factor	0.031	lb/hp-hr	[AP-42 3.3-1, 10/96 ]	25.33	lbs/hr
Calculations	$(0.031 \text{ lb/hp-hr}) * (817 \text{ hp}) =$	40.52	TPY		
	$(25.33 \text{ lbs/hr}) * (3200 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$				

**SOx Emissions:**

Emission Factor	0.0021 lb/hp-hr	[AP-42 3.3-1, 10/96]	1.67	lbs/hr
Calculations	(0.0021 lb/hp-hr) * (817 hp) =		2.68	TPY
	(1.67 lbs/hr) * (3200 hrs/yr) * (0.0005 tons/lb) =			

**VOC Emissions:**

Emission Factor	0.0025 lb/hp-hr	[AP-42 3.3-1, 10/96]	2.05	lbs/hr
Calculations	(0.0025 lb/hp-hr) * (817 hp) =		3.28	TPY
	(2.05 lbs/hr) * (3200 hrs/yr) * (0.0005 tons/lb) =			

**Unpaved Roadways (Haul Roads)**

Emission Factor	EF = k (s/12) <sup>a</sup> * (W/3) <sup>b</sup>		[AP-42 13.2.2.2, 11/06]	
	where:	EF, Emission Factor	=	lbs Emitted Per Vehicle Mile Traveled (VMT)
	k, Empirical Constant PM	=	4.9	[AP-42 Table 13.2.2-2, 11/06]
	k, Empirical Constant PM <sub>10</sub>	=	1.5	[AP-42 Table 13.2.2-2, 11/06]
	k, Empirical Constant PM <sub>2.5</sub>	=	0.15	[AP-42 Table 13.2.2-2, 11/06]
	s, Surface Material Silt Content (%)	=	7.1	[AP-42 Table 13.2.2-1, 11/06]
	W, Mean Vehicle Weight (tons)	=	50	[Applicant Provided Data]
	a, Empirical Constant PM	=	0.7	[AP-42 Table 13.2.2-2, 11/06]
	a, Empirical Constant PM <sub>10</sub> /PM <sub>2.5</sub>	=	0.9	[AP-42 Table 13.2.2-2, 11/06]
	b, Empirical Constant PM - PM <sub>2.5</sub>	=	0.45	[AP-42 Table 13.2.2-2, 11/06]

**PM Emissions:**

Emission Factor	$EF = 4.9 * (7.1/12)^{0.7} * (50/3)^{0.45} =$		12.04	lbs/VMT
Calculations	(12.04 lbs/VMT) * (5 miles/day) =		60.18	lbs/day
	(60.18 lbs/day) * (365 days/yr) * (0.0005 tons/lb) =		10.98	TPY

**PM<sub>10</sub> Emissions:**

Emission Factor	$EF = 1.5 * (7.1/12)^{0.9} * (50/3)^{0.45} =$		3.32	lbs/VMT
Calculations	(3.32 lbs/VMT) * (5 miles/day) =		16.59	lbs/day
	(16.59 lbs/day) * (365 days/yr) * (0.0005 tons/lb) =		3.03	TPY

**PM<sub>2.5</sub> Emissions:**

Emission Factor	$EF = 0.15 * (7.1/12)^{0.9} * (50/3)^{0.45} =$		0.33	lbs/VMT
Calculations	(0.33 lbs/VMT) * (5 miles/day) =		1.66	lbs/day
	(1.66 lbs/day) * (365 days/yr) * (0.0005 tons/lb) =		0.30	TPY

**V. Air Quality Impacts**

MAQP #4649-00 will cover the plant while operating at any location within Montana, excluding those areas having a Department of Environmental Quality (Department)-approved permitting program, areas considered tribal lands, or areas in or within 10 kilometers (km) of certain PM<sub>10</sub> nonattainment areas.

Emissions generated from the operation of this source are well control and limited, furthermore, the portable unit would be expected to be operated on an intermittent and seasonal basis and any air quality impacts would be expected to be minimal and temporary. The Department determined that the impact from this permitting action will be minor and is not expected to cause or contribute to a violation of any ambient air quality standard.

## VI. Ambient Air Impact Analysis

The Department determined that the impact from this permitting action will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

## VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

## VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

**DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**Permitting and Compliance Division**  
**Air Resources Management Bureau**  
**P.O. Box 200901, Helena, MT 59620**  
**(406) 444-3490**

**DRAFT ENVIRONMENTAL ASSESSMENT (EA)**

*Issued To:* Matriarch Construction, Inc.  
P.O. Box 472  
Forsyth, MT 59327

*Montana Air Quality Permit number:* 4644-00

*Preliminary Determination Issued:* May 2, 2011

*Department Decision Issued:*

*Permit Final:*

1. *Legal Description of Site:* Matriarch operates a portable nonmetallic mineral processing facility, which will initially be located at Section 17, Township 2 South, Range 24 East within Yellowstone, Montana. However, MAQP #4649-00 applies while operating at any location in Montana, except those areas having a Department of Environmental Quality (Department)-approved permitting program, areas considered tribal lands, or areas in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) nonattainment areas. A Missoula County air quality permit will be required for locations within Missoula County, Montana. An addendum will be required for locations in or within 10 km of certain PM<sub>10</sub> nonattainment areas.
2. *Description of Project:* The Department received a permit application from Matriarch for the operation of a portable crushing and screening facility with a maximum rated design process rate of 275 tons per year (TPH) for crushing and 425 TPH of screening production. Matriarch proposes to utilize a portable electrical generator powered by diesel engine to supply electricity to the plant. The proposed diesel engine/generator will have a maximum design capacity of up to 817 hp. Matriarch requested that this permit be written in a de minimis friendly manner.
3. *Objectives of Project:* The object of the project would be to produce business and revenue for the company through the sale and use of aggregate. The issuance of MAQP #4649-00 would allow Matriarch to operate the permitted equipment at various locations throughout Montana (as described above), including the proposed initial site location.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. The “no-action” alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because MAQP #4649-00 has demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the “no-action” alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #4649-00

6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.
7. *The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites				X		Yes
J	Cumulative and Secondary Impacts			X			Yes

**SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS:** The following comments have been prepared by the Department.

**A. Terrestrial and Aquatic Life and Habitats**

This permitting action would have a minor effect on terrestrial and aquatic life and habitats, as the proposed project would likely occur within existing commercial gravel pit locations that have already been disturbed. Furthermore, the air emissions would have only minor effects on terrestrial and aquatic life because facility emissions would be well dispersed in the area of the operations (see Section 7.F of this EA) and would expect to have intermittent and seasonal operations. Therefore, only minor and temporary effects to terrestrial and aquatic life and habitat would be expected from the proposed project.

**B. Water Quality, Quantity and Distribution**

Water would be required for dust suppression on the surrounding roadways and general facility area. This water use would only cause minor, if any, impacts to water resources because the facility will require a small volume of water. In addition, the facility would emit air pollutants, and corresponding deposition of pollutants would occur, as described in Section 7.F. of this EA. However, the Department determined that, due to dispersion characteristics of pollutants and conditions that would be placed in MAQP #4649-00, any impacts from deposition of pollutants on water quality, quantity, and distribution would be expected to be minor.



C. Geology and Soil Quality, Stability and Moisture

Only minor impacts from deposition of air pollutants on soils would result (as described in Section 7.F of this EA) and only minor amounts of water would be used for pollution control, and would be used, only as necessary, in controlling particulate emissions. Thus, only minimal water runoff would occur. Since only minor amounts of pollution would be generated and corresponding emissions would be widely dispersed before settling upon surrounding soils and vegetation (as described in Section 7.D of this EA), impacts would be minor. Therefore, any effects upon geology and soil quality, stability, and moisture from air pollutant emissions from equipment operations would be expected to be minor and short-lived.

D. Vegetation Cover, Quantity, and Quality

Only minor impacts would occur on vegetative cover, quality, and quantity because the facility would operate in an area where vegetation has been previously disturbed. During operations, the facility would be a relatively minor source of emissions and the pollutants would be greatly dispersed (as described in Section 7.F of this EA); therefore, deposition on vegetation from the proposed project would be minor. Since water usage would be minimal (as described in Section 7.B of this EA) and the associated soil disturbance from the application of water and water runoff would be minimal (as described in Section 7.C of this EA), corresponding vegetative impacts would be expected to be minor.

E. Aesthetics

The crushing facility would be visible and would create noise while operating at the proposed site. However, Permit MAQP #4649-00 would include conditions to control emissions, including visible emissions, from the plant. The facility would be portable, would operate on an intermittent and seasonal basis, and would be a small industrial source. Therefore, any visual aesthetic impacts would be short-lived and minor.

F. Air Quality

Air quality impacts from the proposed project would be minor since the facility would be relatively small and operate on an intermittent and temporary basis. MAQP #4649-00 would include conditions limiting the facility's opacity; require water and water spray bars be available on site and used to ensure compliance with opacity standards; and limit the facility's crushing production.

Further, the Department determined that this crushing facility would be a minor source of emissions as defined under the Title V Operating Permit Program because the source's potential to emit is limited to below the major source threshold level of 100 TPY for any regulated pollutant. Pollutant deposition from the facility would be minimal because the pollutants emitted would be widely dispersed (from factors such as wind velocity and wind direction) and would have minimal deposition on the surrounding area. Therefore, air quality impacts from operating the crushing facility in this area would be expected to be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to assess any potential impacts to any unique endangered, fragile, or limited environmental resources in the initial proposed area of operation (Section 17, Township 2 South, Range 24 East, Yellowstone County, Montana), the Department contacted the Natural Resource Information System – Montana Natural Heritage Program. Search results concluded there is one species of concern within the area. The search area, in this case, is defined by the section, township, and range of the proposed site, with an additional 1-mile buffer. The Yellowstone Cutthroat Trout (Sensitive), a vertebrate animal, was identified as the single known species of concern.

Based on the impacts presented by similar permitted crushing and screening operations and the remote potential that any vertebrate animal species of concern would be located within the operational area of the project, any effects on the local populations are expected to be minimal.

Initial and typical operations will likely take place within a previously disturbed industrial site, further limiting the potential for impact to any unique endangered, fragile, or limited environmental resource. Therefore, the overall industrial nature of the area would not change as a result of the proposed project and any associated impacts are expected to be minor

#### H. Demands on Environmental Resource of Water, Air and Energy

Due to the relatively small size of the project, any demand on environmental resources will be minor. Small quantities of water would be required for dust suppression of particulate emissions being generated at the site. Since the emissions from the source will be minor, intermittent, and seasonal, demands on air resources would be minor. Due to operating schedule energy requirements would also be small and provided on-site through the diesel engine/generator. In conclusion overall impacts to water, air, and energy resources would be expected to be minor.

#### I. Historical and Archaeological Sites

The Department contacted the Montana Historical Society - State Historical Preservation Office (SHPO) in an effort to identify any historical and/or archaeological sites that may be present in the proposed initial location of the facility. Search results concluded that there are no previously recorded historical or archaeological resources of concern within the area proposed for initial operation of the processing plant. According to correspondence from the Montana State Historic Preservation Office, there would be a low likelihood of adverse disturbance to any known archaeological or historic site given previous industrial disturbance to the area. Therefore, no impacts upon historical or archaeological sites would be expected as a result of operating the proposed crushing/screening plant.

Based on information received from the applicant, the proposed project sites have been previously disturbed in accordance with open cut permits held by the applicant.

#### J. Cumulative and Secondary Impacts

Operation of the portable crushing/screening plant would cause minor cumulative and secondary impacts to the physical and biological aspects of the human environment because it would be located at an existing gravel pit and would be limited in the amount of air emissions generated. Emissions and noise generated from the equipment would, at most, result in only minor impacts to the area of operation because it would be seasonal and temporary in nature. Additionally, this facility, in combination with other emissions from equipment operations would not be permitted to exceed 250 tons per year of non-fugitive emissions of an individual pollutant. Overall, cumulative and secondary impacts to the physical and biological aspects of the human environment would be minor.

8. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores				X		Yes
B	Cultural Uniqueness and Diversity				X		Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities				X		Yes
G	Quantity and Distribution of Employment				X		Yes
H	Distribution of Population				X		Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals			X			Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The operation of the crushing facility would cause no disruption to the social structures and mores in the area because the source would be a minor industrial source of emissions and would only have temporary and intermittent operations. Further, the facility would be required to operate according to the conditions that would be placed in MAQP #4649-00, which would limit the effects to social structures and mores.

B. Cultural Uniqueness and Diversity

Since the initial location is sited within an industrial/commercial area the cultural uniqueness and diversity of this area would not be impacted by the operation of the proposed crushing facility.

C. Local and State Tax Base and Tax Revenue

Only minor impacts to the local and state tax base and revenue could be expected from the employees and facility production. The plant may require additional employees during the operating season. However, because the facility is portable and temporary, it is unlikely that people would move to the area as a result of this project. Impacts to local tax base and revenue would be minor and short-term because the source would be portable and the money generated for taxes would be widely distributed.

D. Agricultural or Industrial Production

The proposed project would have a minor impact on local industrial production since the facility would increase gravel production and air emissions only slightly. Minimal deposition of air pollutants are expected to occur on the surrounding land (as described above in Section 7.F), whereby effects on the surrounding vegetation or agricultural production are expected to be minor.

E. Human Health

MAQP #4649-00 would incorporate conditions to ensure that the crushing and screening facility would be operated in compliance with all applicable air quality rules and standards. These rules and standards are designed to be protective of human health. As described in Section 7.F. of this EA, the air emissions from this facility would be minimized by the use of water spray and other operational limits. Additionally, the facility will be operating on a temporary and seasonal basis. Therefore, only minor impacts would be expected on human health from the proposed project.

F. Access to and Quality of Recreational and Wilderness Activities

Based on information presented by Matriarch, no recreational activities or wilderness areas are near the proposed project site. Therefore, no impacts to the access to and quality of recreational and wilderness activities are anticipated.

G. Quantity and Distribution of Employment

The portable crushing/screening operation will be used as a secondary plant and operation will occur infrequently. No individuals would be expected to permanently relocate to this area of operation as a result of operating the crushing/screening facility. Therefore, no effects upon the quantity and distribution of employment in this area would be expected.

H. Distribution of Population

No additional employment is expected as a result of this project. Therefore, the operation would not impact the normal population distribution in the initial area of operation or any future operating site.

I. Demands for Government Services

While the crushing and screening facility is operating a minor increase in traffic may be noted on existing roadways in the area. In addition, government services will be required for acquiring the appropriate permits for the proposed project and to verify compliance with the permits that would be issued. However, demands for government services would be minor.

J. Industrial and Commercial Activity

The operation of the crushing and screening facility would represent only a minor increase in the industrial activity in the proposed area of operation because the source would be a relatively small industrial source that is portable and temporary in nature. No additional industrial or commercial activity would be expected as a result of the proposed operation.

#### K. Locally Adopted Environmental Plans and Goals

Matriarch would be allowed, by MAQP #4649-00, to operate in areas designated by EPA as attainment or unclassified for ambient air quality. An Addendum would be required to operate in or within 10 km of a PM<sub>10</sub> nonattainment area. MAQP #4649-00 would contain operational restrictions for protecting air quality and to keep facility emissions in compliance with any applicable ambient air quality standards, as a locally adopted environmental plan or goal for operating at this proposed site. Because the proposed crushing and screening facility would be a portable source and would have intermittent and seasonal operations, any impacts from the project would be minor and short-lived.

#### L. Cumulative and Secondary Impacts

The operation of the crushing and screening facility would present only minor cumulative and secondary impacts to the social and economic aspects of the human environment in the immediate area of operation because the source would be a portable and temporary source. Minor increases in traffic would have minor effects on local traffic in the immediate area. Because the source is relatively small and temporary, only minor economic impacts to the local economy would be expected from operating the facility. Further, this facility may be operated in conjunction with other equipment owned and operated by Matriarch, but any cumulative impacts upon the social and economic aspects of the human environment would be minor and short-lived. Thus, only minor and temporary cumulative effects would result to the local economy.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of a portable crushing and screening facility. MAQP #4649-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: D. Kuenzli  
Date: April 21, 2011